

## ABSTRACT

### DIFFERENTIAL PRESSURE VALVE EMPLOYING NEAR-BALANCED PRESSURE

A differential pressure valve is used to deliver a medical gas such as oxygen to a  
5 patient. A movable slave diaphragm operates to open and close a gas passageway in  
response to the patient's inhalations. In particular, the slave diaphragm opens and closes  
a nozzle that is pressurized by stored oxygen in a gas reservoir. The diaphragm is  
pneumatically controlled in response to the patient's inhalation. The nozzle is sized so  
that the forces exerted on the diaphragm on the nozzle side of the diaphragm nearly  
10 balance the forces exerted on the opposing (timing gas chamber) side of the diaphragm.  
Furthermore, the nozzle includes a filter element.